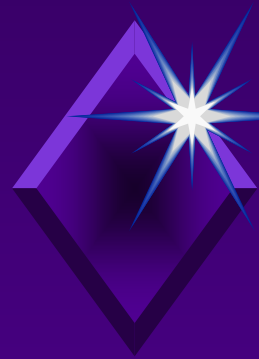




# **Modular Questionnaire and Visual Recall Prompts for Occupational History Data Collection**

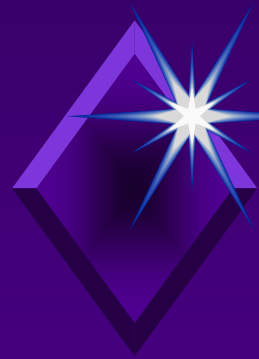
**S. Pinney, L. Mark, J Nasuta, A. Borys,  
E. Galbraith, R. Wones**

**University of Cincinnati**



# **U.S. Department of Energy Uranium Processing Plant at Fernald Ohio**

- ◆ Known as the Feed Materials Production Center (FMPC)
- ◆ Processed uranium ore and recycled materials to make highly refined uranium metal products used in DOE nuclear weapons production complex
- ◆ In operation from 1952 to 1989



# Fernald Workers' Medical Monitoring Program

- ◆ Yearly medical screening
- ◆ Occupational history data collection
- ◆ Collect information in a systematic way so that it may be used for subsequent research



# **Extensive and Detailed Occupational History**

- ◆ Questionnaire
- ◆ In-Person Interview
- ◆ Memory Aids - Maps of Site
- ◆ Memory Aids - Picture Notebooks



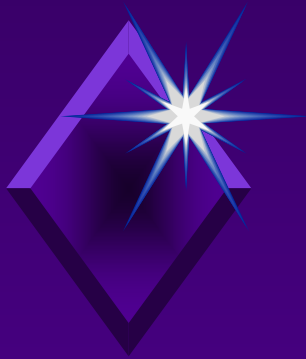
# Job History Summary

- ◆ Used job history file to create job history summary report for each worker
- ◆ Summary Report:
  - ◆ Used to assemble Modular Questionnaire
  - ◆ Sent to worker to confirm hire and termination dates; departmental work history;
  - ◆ Subset of cohort asked to write in exact work location for each period of employment



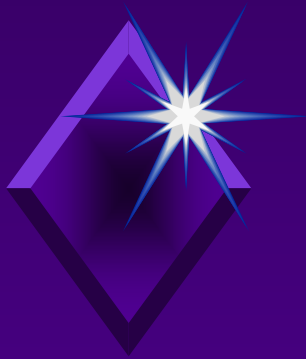
# Modular Questionnaires-1

- ◆ Nine questionnaire modules for production plants (8 plants for uranium ore digestion, separation and metal product production; one pilot production plant)
- ◆ One module for positions where work was in multiple locations:
  - ◆ D&D
  - ◆ Engineers
  - ◆ Health and Safety
  - ◆ Maintenance
  - ◆ Laborers



## Modular Questionnaires-2

- ◆ Four questionnaire modules for other groups of workers
  - ◆ Technical Division
  - ◆ Security
  - ◆ Laundry
  - ◆ Administration, clerical and office, other work



# Fernald Worker Cohort

Employees of the Fernald plant – 1952-1989	7296
Deceased	2193 (30.1%)
No address	1583 (21.7%)
Alive with address	3520 (48.2%)





# Cohort Participation

Alive with address	3520
Returned mailed questionnaire	2660 (75.6%)
Returned post card but not subsequent questionnaire	519 (14.7%)
No response	341 (9.7%)

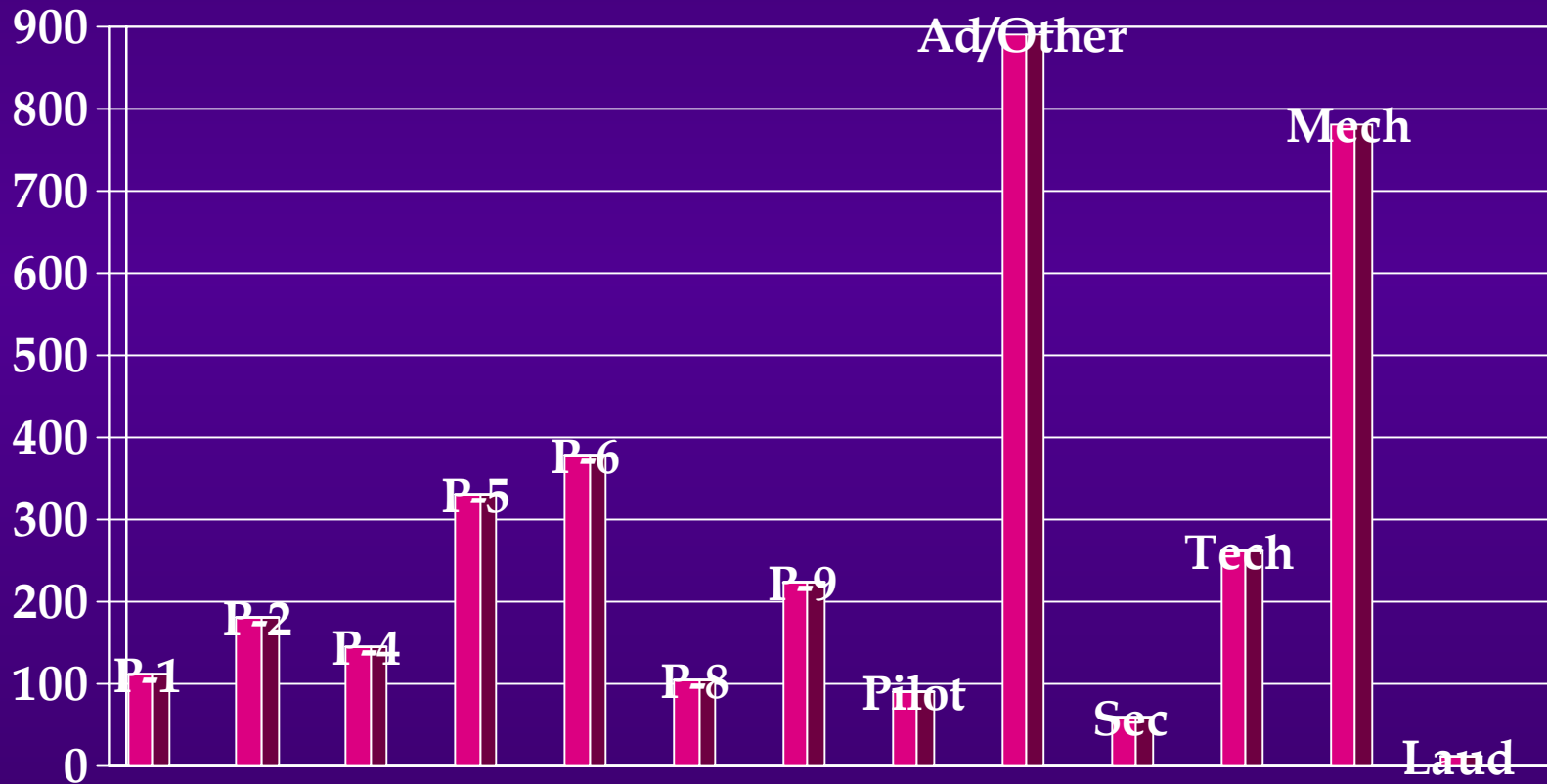


## Mailed Questionnaires

- ◆ 2648 returned occupational history questionnaires
- ◆ 3570 questionnaire modules
- ◆ Average number of modules per questionnaire = 1.34



# Questionnaire Modules





## Each Module Contained:

- ◆ Job Classification
- ◆ Area of Plant
- ◆ Work Tasks
- ◆ Work with Equipment
- ◆ Questions re
  - ◆ Fires
  - ◆ Overtime
  - ◆ Shift work
- ◆ Preview of selected interview questions



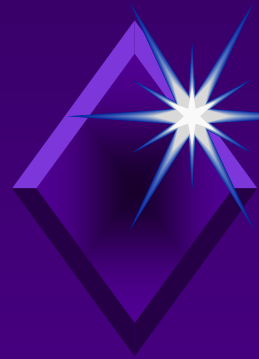
# Work Location for Exposure Estimation

- ◆ K-65 Waste Silos at Fernald – Primary Point Source of Radon
- ◆ Work location and time of day most influential factors in estimating yearly radon exposure
- ◆ Used questionnaire data for assigning location and shift



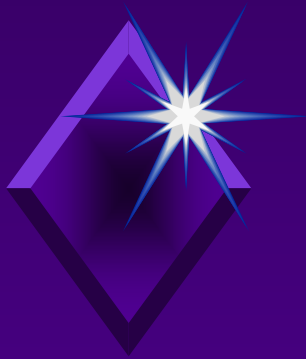
# Visual Recall Prompt Collage Boards

- ◆ Collage boards of photos of exterior of plant buildings
- ◆ Highlighted exterior details of structures most frequently remembered
- ◆ Viewed by workers prior to occupational history interview



# Visual Recall Prompt Photo Notebooks

- ◆ Notebooks containing pictures of production activities
- ◆ Viewed by workers prior to interview
- ◆ Worker asked to describe what was happening in photo
- ◆ Improved recall of production activities and work location



# Method for Assigning Work Location

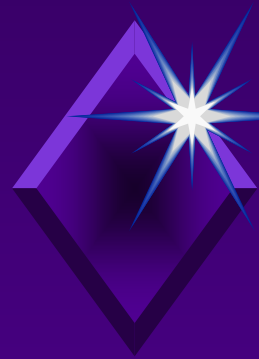
- ◆ No work location information in job history file
- ◆ Developed assumptions to assign work location for each calendar year using information in three fields in job history -Plant, Department and Job Title
- ◆ In developing assumptions used process descriptions, plant organizational charts, position descriptions in organized labor contracts, general information learned during occupational history interviews





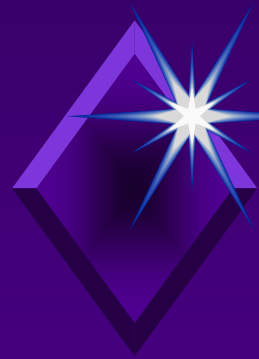
# Work Location Assignment

- ◆ Job history (multiple record per person file) – each record contained Plant, Department and Jobtitle information; beginning and end dates.
- ◆ Assumptions re work location developed for information in each data field, and applied using computer logic.
- ◆ Each record of job history assigned a location code, indicating one or several work locations for that time period.



# Verification of Location Assignment Assumptions

- ◆ Direct questions on location of work included in occupational history questionnaire for approx 500 workers
- ◆ Using these data, verified location assignment for 2569 job records



# Work Shift – Assumption Development

- ◆ Specific questions on work shift included in questionnaire modules
- ◆ Compiled responses of workers who completed questionnaires
- ◆ Used these data to develop assumptions about probability of working evening or night shift for each Jobtitle



# Conclusions

- ◆ Information on exposure determinant factors such as work location and shift may not be available in employers' work history file
- ◆ Modular design of occupational history questionnaires can efficiently obtain this detailed information
- ◆ Visual recall prompts improves accuracy of information obtained in occupational history interviews